

Selective Zone Isolation for HVAC Systems



Method for Restricting Air Flow for Selected Zones within a Building Saves Energy

The Department of Energy's Inventions and Innovation Program funded development of a method for selectively controlling airflow from a central HVAC system. The system uses RetroZone's Flexdamper™ Air Control Inserts coupled with an electronic controller and air pumping system. Flexdampers are remotely powered by air, so no bulky motor is present on the outside of the damper to hinder installation. Round or rectangular Flexdampers are easily installed into new ductwork or retrofitted into ducts that cannot accept conventional dampers because of poor access. The rectangular Flexdamper can be folded or bent to insert through a register or other smaller opening, making this damper a viable option for retrofitting air control into ducts that have been covered with sheet rock or other obstacles. Trim-to-fit sizing by the installer allows each size of rectangular Flexdamper to fit several sizes of duct, including non-standard sizes.

Many new homes are built with ducts in joists and other restricted areas, preventing installation or later servicing of a mechanical damper. Flexdampers can be serviced from a register or plenum, with no need to get to the outside of a duct. This opens many new service and installation options. The lighter weight of a Flexdamper does not need special support and works well for suspended duct applications.

Benefits

Cost Savings

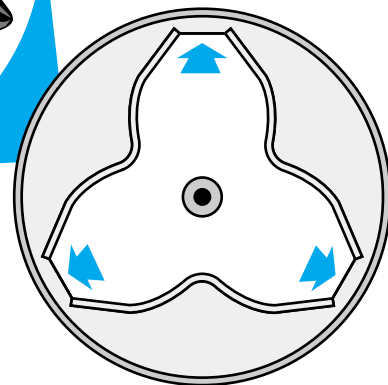
In addition to energy savings there are savings in installation costs and labor and up to \$2000 per system savings from stretching the capacity of the HVAC system.

Energy Savings

A single zoning system can save 20% to 30% in a typical heating and cooling bill. Most installations are in larger homes with an estimated saving of over 5000 kWh per year, depending on energy use and climate conditions.

Installation

Flexdampers can be retrofitted into ducts that cannot accept conventional dampers because of poor access. The Flexdamper's lower unit cost makes zoning practical in retrofit, multi duct systems that may need several dampers per zone.



Flexdamper Air Control Insert in Round Duct

Overview

- ◆ Developed by RetroZone, Inc. (formerly Enerzone Systems)
- ◆ Commercialized in 1991
- ◆ More than 4,000 units in use in 2001

Energy Savings (Trillion Btu)

Cumulative through 2001	2001
0.305	0.064

Emissions Reductions (Thousand Tons, 2001)

Particulates	SO _x	NO _x	Carbon
0.0	0.008	0.008	1.11

Applications

- ◆ Retrofit for HVAC systems in larger homes
- ◆ Suitable for installation with new HVAC systems

Capabilities

- ◆ Restricts heating and cooling in areas that are not in use.
- ◆ Increases comfort for occupied areas.
- ◆ Reduces heating and cooling system capacity requirement.